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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,780	08/28/2003	Junichi Kitano	241917US-2DIV	5844
22850	7590	05/08/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			MOORE, KARLA A	
			ART UNIT	PAPER NUMBER

1763

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/649,780

Applicant(s)

KITANO ET AL.

Examiner

Karla Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/24/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-36, 38-41, 43-52 and 62 is/are pending in the application.
- 4a) Of the above claim(s) 21-34, 43-52 and 62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 35, 36 and 38-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/772,923.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0803</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 35, 38-39 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,022,672 to Ikeda in view of European Patent Application No. 0 275 126 A2 to Yoshihide et al.

4. Ikeda discloses a substrate processing apparatus in Figure 8, substantially as claimed and comprising: a reaction inhibiting section (multiple numbers, 155-157; column 1, rows 30-52 and column 6, rows 1-17) capable of inhibiting progress of a resolution reaction of a resist for a substrate coated with the resist and exposed; a heating section (any of 162, which are general/conventional semiconductor resist processing sections; column 13, rows 22-28 and column 14, rows 55-58) for heating the substrate processed in the reaction inhibiting section to progress the resolution reaction of the resist; a cooling section (any of 162, which are general/conventional semiconductor resist processing sections; column 13, rows 22-28 and column 14, rows 55-58) for cooling the substrate heated in the heating section to inhibit the progress of the resolution reaction of the resist; and a developing processing section (any of 162,

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which are general/conventional semiconductor resist processing sections; column 13, rows 22-28 and column 14, rows 55-58) for performing coating processing of a developing solution for the substrate cooled in the cooling section.

5. Ikeda discloses the invention substantially as claimed and as described above.

6. However, Ikeda fails to explicitly teach the reaction inhibiting (cooling) section being controlling an extent that the progress of the resolution reaction of a resist is inhibited according to an area of the substrate.

7. Yoshihide et al. teach a reaction inhibiting (cooling) section controlling the extent that the progress of the resolution reaction of a resist is inhibited with regard to the resist which is coated onto the substrate and is exposed according to an area of the substrate for the purpose of forming a highly precise pattern (abstract).

8. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an reaction inhibiting (cooling) section controlling the extent that the progress of the resolution reaction of a resist is inhibited with regard to the resist which is coated onto the substrate and is exposed according to an area of the substrate in Ikeda in order to form a highly precise pattern as taught by Yoshihide et al.

9. With respect to claims 38 and 39, using the heating and cooling sections (155 and 163) of the reaction inhibiting section, the section may inhibit the progress of the resolution reaction of the resist by heating and/ or cooling the substrate coated with the resist and exposed so as not to cause dew formation.

10. With respect to claim 41, which recites that the resist is a chemically amplified resist, the resolution of which is progressed by an acid produced by exposure, Examiner notes that the courts have ruled that that the inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims. In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Examiner also notes that Ikeda teaches

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that the resist is a chemically amplified resist, the resolution of which is progressed by an acid produced by exposure (column 5, rows 13-18).

11. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,022,672 to Ikeda in view of U.S. Patent No. 5,723,259 to Oikawa et al. and European Patent Application No. 0 275 126 A2 to Yoshihide et al.

12. Ikeda discloses a substrate processing apparatus in Figure 8 substantially as claimed and comprising: a first station (151) including a mounting section on which a substrate cassette housing a plurality of substrate is mounted and a delivery means (153) for receiving and sending the substrate from/to the substrate cassette mounted on the mounting section; a second station (multiple part numbers 154-157 and 163) connected to the first station, for processing the substrate transferred by the delivery means; and an interface section (158) for delivering the substrate between a processing station (any of 162) and an aligner (159) for subjecting the substrate to exposure processing; wherein the second station includes; a cooling section (163) for cooling the substrate heated in the heating section to inhibit the progress of the resolution reaction of the resist, and a developing processing section (any of 162, which are general/conventional semiconductor resist processing sections; column 13, rows 22-28 and column 14, rows 55-58) for performing coating processing of a developing solution for the substrate.

13. However, Ikeda fails to teach the interface section includes a reaction inhibiting section placed at a position nearer the aligner side.

14. Oikawa et al. teach the use of a reaction inhibiting section (cooling buffer; Figure 1, 6; column 9, rows 4-5 and column 10, rows 8-12) provided in an interface section for the purpose of a cooling a substrate after treatment to an ordinary temperature. The reaction inhibiting section is place in a central location. Incorporated into the interface section of Ikeda it would be "nearer" to the aligner as the interface section is "nearer" to the aligner than the other sections of the apparatus.

15. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an reaction inhibiting section provided in an interface section for the purpose of cooling a substrate after treatment to an ordinary temperature as taught by Oikawa et al.

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16. Ikeda and Oikawa et al. disclose the invention substantially as claimed and as described above.

17. However, Ikeda and Oikawa et al. fail to explicitly teach the reaction inhibiting (cooling) section controlling an extent that the progress of the resolution reaction of a resist is inhibited according to an area of the substrate.

18. Yoshihide et al. teach a reaction inhibiting (cooling) section controlling the extent that the progress of the resolution reaction of a resist is inhibited with regard to the resist which is coated onto the substrate and is exposed according to an area of the substrate for the purpose of forming a highly precise pattern (abstract).

19. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an reaction inhibiting (cooling) section controlling the extent that the progress of the resolution reaction of a resist is inhibited with regard to the resist which is coated onto the substrate and is exposed according to an area of the substrate in Ikeda and Oikawa et al. in order to form a highly precise pattern as taught by Yoshihide et al.

20. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda and Yoshihide et al. as applied to claims 35, 38-39 and 41 above, and in view of Japanese Patent Publication No. 10-256344 to Tateyama.

21. Ikeda and Yoshihide et al. disclose the invention substantially as claimed and as described above.

22. However, Ikeda and Yoshihide et al. fail to teach a cooling section cools a transfer area between the exposure section and the heating section by supplying a gas having humidity lower than air to the transfer area.

23. Tateyama teaches using a transfer unit/section comprising a cooling gas flow for the purpose of efficiently cooling substrates down to a first fixed temperature before they are laid on cooling plates to do a second cooling (abstract).

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24. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the transfer unit/section in Ikeda and Yoshihide et al. with a cooling gas flow in order to efficiently cool substrates down to a first fixed temperature before they are laid on cooling plates to do a second cooling as taught by Tateyama.

25. Regarding the specific gas used, the courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

Response to Arguments

26. Applicant's arguments with respect to claims 35-36 and 38-41 have been considered but are moot in view of the new ground(s) of rejection. Yoshihide et al. teach providing an reaction inhibiting (cooling) section controlling the extent that the progress of the resolution reaction of a resist is inhibited with regard to the resist which is coated onto the substrate and is exposed according to an area of the substrate as claimed.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USP 4,897,337 and USP 5,051,338 also teach providing an reaction inhibiting (cooling) section that controls the extent that the progress of the resolution reaction of a resist is inhibited with regard to the resist which is coated onto the substrate and is exposed according to an area of the substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC)

at 866-217-9197 (toll-free).



Karla Moore
Patent Examiner
Art Unit 1763
31 March 2006